UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

Subject: Responses to the National Remedy Review Board Recommendations for the Proposed Plan at the Former Koppers (Newport Plant) Co., Inc. Superfund Site

From: Abraham Ferdas, Director
Hazardous Site Cleanup Division

To: JoAnn Griffith, Chair
National Remedy Review Board

This memorandum provides Region 3's response to the National Remedy Review Board's (NRRB's) recommendations regarding the proposed cleanup action to address contamination at the Former Koppers (Newport Plant) Co., Inc. Superfund Site in Newport (New Castle County), Delaware. The NRRB's recommendations were provided in a memorandum dated June 14, 2004. Please find our responses below.

Recommendation 1 - *The Region's preferred alternative includes the excavation of creosote-related materials (i.e., contaminated soil, NAPL) to a depth of 25 to 30 feet in some areas. The Board questions the need for such deep excavations, given the expected future use of the land as a wetland, together with available data indicating that the NAPL is not a significant source of contamination to either the underlying groundwater or adjacent surface water. In response to questions at the meeting, the Region explained that excavation of the deeper materials, which apparently is supported by the Potentially Responsible Parties (PRP), will facilitate the creation of additional wetland areas to be used for wetland bank credits in the future. The Board is concerned that the package does not clearly justify that deeper excavations are necessary to achieve a protective remedy. Although the Region presumably would not object to the performance of this additional work by the PRPs, based on the information presented in the package, the Board does not believe that it should be incorporated into the Region's preferred alternative. The preferred alternative should identify only those CERCLA remedial actions necessary for a protective remedy.*

However, if the Region believes that excavation of the deeper materials is necessary to ensure a remedy which best meets the requirements of the National Contingency Plan (NCP), the Board recommends that the site decision documents contain sufficient information to support such an action.

Response to Recommendation 1 - The Region agrees that activities called for in a ROD should not extend beyond what is necessary to meet the requirements of the NCP. The Region does

believe that, of the alternatives evaluated, the Preferred Alternative presented to the Board best satisfies the requirements of the NCP. However, the Region has modified the Proposed Plan to address the Board's concerns. EPA's general expectation at Superfund Sites is to return ground water to its beneficial use. The Columbia or uppermost aquifer at this Site is a Class IIB aquifer (i.e., a potential drinking water source). The only way to restore the aquifer (outside of the containment areas) is to remove or destroy the NAPL. Excavation of the NAPL-contaminated soil (to an average depth of 5 to 15 feet, with possible maximum depths in a few locations of up to 30 feet) is the most implementable and cost effective method of cleanup. The use of steam injection was also thoroughly evaluated and found to be very costly. Other methods of NAPL removal or destruction were screened out early in the feasibility study due to easily recognizable implementability issues. Complete removal of the NAPL outside of the containment area increases the degree of long-term permanence of the remedy and has a high degree of state acceptance since it would maximize the opportunity for the this area to be used as a wetland bank to mitigate losses from local highway construction. In areas where uplands must be excavated to remove NAPL from ground water, overall project costs would be reduced by making these areas wetlands which would decrease the cost of backfill and provide areas to mitigate wetland losses from the landfill construction.

Recommendation 2 - *The Board notes that the remedy preferred by the Region includes a component for passive NAPL recovery within the containment cells at an estimated cost of $4.5M. However, it does not appear that the $4.5M estimated cost for this remedy component includes potential operation and maintenance of the NAPL recovery and/or water treatment. The Board recommends that the decision documents specify these costs.*

Response to Recommendation 2 - The Region agrees that the estimated cost for the passive NAPL recovery system should include costs associated with treatment of both any recovered NAPL as well as the ground water that would be recovered in order to control the water level elevation within the containment areas. Upon further review of the cost estimate, the Region has determined that the capital cost of the carbon adsorption water filtration system was also inadvertently omitted. The cost estimate has been revised to include approximately $250,000 in capital cost for the water filtration system and approximately $63,000 in annual operation and maintenance (O&M) costs for an additional present worth cost of approximately $1,000,000. The Region anticipates that during the remedial design, testing would be conducted to determine the most appropriate treatment, including the possibility of little to no treatment for the ground water if it already meets discharge requirements.

Recommendation 3 - *Information presented to the Board indicates the Region's preference for a passive NAPL recovery system is partially supported by the enhanced ability to manage ground water within the containment cells (e.g., alleviation of ground water mounding or build-up), in addition to meeting RAO's for containment of NAPL. The Board recommends that the Region develop a more comprehensive strategy for the containment cells, including evaluation of enhanced NAPL recovery methods and modeling of ground water inputs to the cell, in order to optimize containment effectiveness and management costs for NAPL and ground water.*

Response to Recommendation 3 - The Region agrees that it is important to optimize containment effectiveness and management costs for NAPL and ground water. The Region has included in its preferred alternative a requirement that the remedial design for the passive NAPL recovery system evaluate (with the help of ground water modeling as appropriate) various configurations of trenches to provide the greatest opportunity to recover NAPL. In addition, the

overall system would be designed to control the water table level with minimal mechanical equipment and to minimize the amount of dissolved phase contamination that may require treatment. Enhanced NAPL recovery methods, such as thermally-enhanced *in-situ* extraction, have been thoroughly evaluated in the RI/FS and the Proposed Plan. The costs associated with these types of technologies were one to two orders of magnitude higher than the use of passive NAPL recovery. Other methods for treating or recovering NAPL (such as *in-situ* oxidation and the introduction of co-solvents) were evaluated but screened out due to insurmountable delivery problems resulting from both the volume of treatment chemicals that would have to be introduced into the subsurface and the reduced permeability due to the heterogeneous subsurface geology.

Recommendation 4 - *Various soil and sediment volumes to be excavated as parts of the preferred alternative are presented in the package. Cost estimates are based on these volumes. The Board was not able to reconcile the various volume estimates and the related cost estimates. For example the PRPs' letter states that 112,000 cubic yards of soil would be excavated, while the package (page 27) says 180,000 cubic yards of soil would be excavated. Similarly, page 27 says 80,000 cubic yards of sediment would be removed (from Hershey Run?), while the volumes in Segments 6 to 10 of Hershey Run in Figure 5 total 116,000 cubic yards. The decision documents should present consistent volume estimates and their basis and should ensure that the estimated costs are based on the same volumes, or explain any differences.*

Response to Recommendation 4 - The Region agrees that it was difficult to reconcile the volume estimates and related cost estimates. The volume estimates have been refined and slight adjustments have been made to the cost estimates as appropriate.

Recommendation 5 - *The preferred alternative, Alternative 4, currently incorporates Monitored Natural Attenuation (MNA) of ground water contamination. The package and presentation to the Board indicated that the contamination is limited to a "halo-like" plume of dissolved contaminants. Furthermore, the package states that exposure to ground water is within or near the acceptable risk range. Based on this information, the Board believes that the ground water remedy is better characterized as source control with monitoring, rather than MNA.*

Response to Recommendation 5 - The Region has modified the text describing Alternative 4 in the Proposed Plan to address the Board's comment. The intent of Alternative 4 is to remediate ground water by containing the worst areas of NAPL contamination within the footprint of the landfill, and excavating areas of NAPL beyond the landfill such that the "halo" of dissolved contamination associated with the NAPL can attenuate naturally. In addition, the Region has revised the discussion to include the risk to a future industrial worker due to exposure to ground water from a well contaminated with NAPL (for example, the Hazard Index for ingestion was 170). The risk does drop sharply beyond the area containing NAPL.

Recommendation 6 - *The Board notes that the preferred remedy includes excavation of the channel in lower Hershey Run but does not include a cost for backfill of the existing channel. Destabilization of the existing channel could have an adverse impact on adjacent wetlands as well as upstream segments of Hershey Run. The Board believes that backfilling of Hershey Run may be necessary and therefore recommends that the proposed remedy include a provision for it and it be further evaluated during design. In addition, the Board recommends that the decision documents provide a more detailed comparison of the sediment excavation alternatives to in-situ*

capping and monitored natural recovery alternatives and better document the preference for removal.

Response to Recommendation 6 - The Region agrees that the areas of Hershey Run that are excavated may need to be backfilled to restore their original profile. In order to reflect this potential cost, the Region has added $2.3 million to the estimated cost of the preferred alternative. The remedial design will evaluate the necessity of complete backfilling. The evaluation will consider such issues has stream bank stability and habitat value. The Region has updated the language in the Proposed Plan to better document our preference for removal of sediments as opposed to capping or monitored natural recovery.

Recommendation 7 - *The proposed cleanup goals for soil and sediment are 600 and 150 mg/kg total PAH, respectively. The different values suggest the possibility that post-remedy soils could recontaminate Hershey Run and wetland sediments. The Board recommends that the decision documents explain how the soil cleanup goal will adequately protect sediments and wetlands from recontamination*.

Response to Recommendation 7 - The Region agrees that the soil cleanup must adequately protect the wetlands from recontamination. The 600 mg/kg soil cleanup goal is a "not-to-exceed" value which would result in average surface soil concentrations of PAHs of a much lower value. Once vegatation has been reestablished after the cleanup, the possibility for recontamination is very remote. One hypothetical area where it could happen is if an area of soil was just below the 600 mg/kg soil cleanup criteria and located adjacent to a wetland that was just below the 150 mg/kg sediment cleanup criteria such that erosion could increase the wetland concentration to above 150 mg/kg, thus creating an unacceptable risk. With the fact that the concentration gradients at the site are steep (i.e., the contamination goes from high to low in a short distance), any areas that would match this condition would be small and would not warrant a change in the soil cleanup criteria. The Proposed Plan has been revised to document how the soil cleanup goal will protect the wetlands from recontamination.

Recommendation 8 - *This site has components of the remedial action (e.g., wetlands' reconstruction, relocated Hershey Run restoration, etc.) which may compliment future restoration of natural resources outside the CERCLA which may compliment natural resources' restoration program. The Board encourages the Region to continue collaboration with various parties (i.e., Trustees, State Agencies, USACE, and PRPs) to maximize the potential ecological value of the area and reduce remedial action costs to the maximum extent practical.*

Response to Recommendation 8 - The Region agrees and will continue to collaborate with the various partners at the Site.

Recommendation 9 - *The Board recommends that the Region fully characterize the NAPL to be removed and treated off-site to determine the appropriate disposal options (e.g., waste streams containing pentachlorophenol may present other disposal issues).*

Response to Recommendation 9 - The Region agrees and has updated the Proposed Plan to reflect this issue.

Recommendation 10 - *In the package presented to the Board, zinc was identified as a non-site related contaminant. At the meeting, the Region informed the Board that the zinc is co-located*

with PAHs, therefore, it would be addressed by the proposed alternatives and that future recontamination (e.g., by the nearby Christina River) is not expected. The Region should clarify in the decision documents the basis for this conclusion.

Response to Recommendation 10 - The Region has revised the Proposed Plan regarding this issue. The preferred alternative would address the vast majority of elevated zinc at the site. This zinc likely came from the adjacent Superfund site, the DuPont-Newport site, where zinc was a major contaminant. The DuPont-Newport site completed construction in 2002 and is no longer a source of zinc to the river. There are other zinc sources in the watershed, most notably the NVF Yorklyn site upstream on Red Clay Creek. Data evaluated during the DuPont-Newport remedy selection process showed that the zinc from the NVF site was not causing sediment contamination in the vicinity of the Koppers and DuPont sites. Since the time of the DuPont-Newport Record of Decision, work has been conducted to help control zinc discharges in the watershed which will only further prevent recontamination. In addition, the State has been developing a TMDL for zinc for both the Red Clay Creek and the Christina River which should further reduce any potential for recontamination in the future.

Recommendation 11 - *The information presented to the Board regarding the Ecological Risk Assessment (ERA) was complex and at times confusing. The Board recommends that the decision documents include (1) a conceptual site model that adequately communicates the exposure pathways which exist at the site, (2) a condensed description of assessment endpoints and their' relationships to site receptors and specific tests conducted, and (3) a description of any relevant new risk information which was obtained since the ERA was finalized.*

Response to Recommendation 11 - The Region agrees that the information presented to the Board regarding the ERA was complex. The ERA section of the Proposed Plan has been completely revised to more clearly describe the risks at the Site. The revisions include a discussion of a conceptual site model, a condensed description of assessment endpoints and their relationships to Site receptors and specific tests conducted, and a description of relevant new risk information which was obtained since the ERA was finalized.

Recommendation 12 - *The package presented to the Board did not contain information on surface water quality or surface water quality standards that may be ARARs at the site. The Region should ensure that the proposed remedy meets or waives any surface water quality ARARs and that these decisions are described in the decision documents.*

Response to Recommendation 12 - The Region has reviewed the available surface water quality data and compared the data to State Water Quality Standards (SWQS). There are no current exceedances of SWQS for site-related compounds, so the preferred alternative would meet the SWQS. In addition, NPDES discharge requirements would be ARARs for any discharge of extracted ground water. The NPDES requirements would ensure that the discharge would not violate any SWQS ARAR. The Record of Decision will have a detailed description of all of the ARARs for the selected remedy.

Recommendation 13 - *Acute hazards to human health and ecological receptors from exposure to creosote are potentially present at this site, but such hazards may not be addressed in standard risk assessments. Such potential hazards should be discussed, at least qualitatively, in the decision documents.*

Response to Recommendation 13 - The Region agrees and has added language to the Proposed Plan that identifies the potential for acute toxicity due to exposure to high concentrations of creosote constituents in sediments at the Site.

We appreciate the Board's comments regarding the Former Koppers (Newport Plant) Co., Inc. Superfund Site. If you have any future questions concerning this Site, please feel free to contact Peter Ludzia, Chief of the General Remedial Section, at (215) 814-3224 or Matthew Mellon, Remedia l Project Manager, at (215) 814-3168.